On the Latency of Object Recognition and Affect: Evidence from Temporal Order and Simultaneity Judgments

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Supplementary Materials S1: Supplementary Analyses

Analyses With All Participants Included

These analyses parallel those reported in the main article; the only difference is that participants who were excluded on theoretical (very low affect ratings) or methodological grounds (e.g., PSS beyond the SOA range; responses indicative of random or task-irrelevant responding) remain included. The sample sizes therefore correspond to those of the complete samples (N = 20 in Exp. 1a and 2; N = 36 in Exp.3; no participants were excluded in Exp. 1b). To guard against skewed distributions and outliers, a permutation test (Kherad-Pajouh & Renaud, 2015) was computed in addition to the parametric ANOVAs.

Experiment 1a: Temporal Order Judgments

Model Fits. The average fit of the probit model to the TOJs was R^2 = .97, SD = .03 for object recognition (OR), and R^2 = .93, SD = .10 for affect (AF).

PSSs for OR and AF. The 2 (task: OR vs. AF) within-subjects × 2 (valence: pleasant vs. unpleasant pictures) × 2 (task order: OR vs. AF first) between-subjects ANOVA revealed a main effect of task, $F(1, 16) = 13.19$, p = .002 (permutational p = .002), η^2_g = .22. No other effect reached significance, ps ≥ .394 (permutational ps ≥ .426). The mean PSS was 40 ms for OR and 110 ms for AF; hence, the participants became on average aware of the picture-evoked feelings 70 ms after they recognized the object (compared to 79 ms for the 18 participants included in the analyses reported in the main text). One of the two excluded participants agreed with the mean pattern (PSS AF > PSS OR); the second participant (very low affect rating) had a PSS difference of -24 ms. Hence, 16 of the 20 participants had a positive OR-AF delay.

Correlations between the latencies of OR and AF. The size of the correlation between the latencies of OR and AF was $r = .28$ (compared to .26 for the 18 participants included in the analyses reported in the main article).

JNDs. The mean JND was greater for AF ($M = 104$ ms) than OR ($M = 56$ ms), but the difference did not reach significance, $F(1, 16) = 3.87$, $p = .467$ (permutational $p = .308$). The other effects were also not significant, Fs ≤ 2.57, ps $\geq .769$ (permutational ps $\geq .792$).

Experiment 1b: Temporal Order Judgments for a broader SOA range

No participants were excluded from the analyses.

Experiment 2: Simultaneity Judgments

Model Fits. The average fit of the Gaussian function was $R^2 = .84$ for OR and $R^2 = .85$ for AF.

PSSs for OR and AF. The ANOVA revealed an effect of task, $F(1, 16) = 12.54$, $p = .003$ (permutational $p = .003$), $\eta^2_g = .28$, reflecting that the participants became aware of the affect significantly later (219 ms) than they recognized the objects (7 ms). Thus, the participants experienced the affect 212 ms after they recognized the object (compared to 154 ms for the 16 participants included in the analyses reported in the main text). No other main effect or interaction reached significance, Fs ≤ 0.84, ps $\geq .994$ (permutational ps $\geq .997$). A positive cognition-affect lag was obtained for three of the four excluded participants; hence, 19 of 20 participants had a positive lag. The fourth excluded participant responded with “simultaneous” at all but one SOA; this participant had a negative lag of -81 ms.

Correlations between the latencies of OR and AF. The size of the Pearson correlation coefficient was reduced to $r = -.03$ (compared to .31 in the main analysis).

JNDs. The ANOVA for the JNDs (computed from the HWHH) yielded a significant effect of task type, $F(1, 16) = 9.99$, $p = .042$ (permutational $p = .007$), $\eta^2_g = .24$, reflecting a larger spread of the psychometric function for AF (203 ms) than OR (49 ms). None of the other main or interaction effects was significant, *F*s ≤ 1.64, *p*s ≥ .594 (permutational *p*s ≥ .742).

Experiment 3: Generalizing the Findings

Affect and Post-Experimental Ratings. Three (four) participants estimated that less than half of the pictures had induced at least a weak pleasant or unpleasant feeling in the picture preview (TOJ task). We decided to keep these participants in the analysis. The remaining participants estimated on average that 81% of the pictures induced at least a weak pleasant or unpleasant feeling (*SD* = 13%, range 55–95%), and that they had recognized 94% (*SD* = 9%, range 60–100%) of the depicted objects during the picture preview. These estimates were nearly identical to those made after the TOJ tasks, *M* = 96% (*SD* = 8%, range 55–100%) for percentage of recognized objects, and *M* = 82%, (*SD* = 15%, range 55–100%) for percentage of experienced affect.

Regarding the answer key used in case the object was not recognized, 9 participants reported no preference, 3 said they used the -1 key, 5 the +1 key, and 5 the +2 key; the remaining 12 participants recognized all objects. For trials where no affect was experienced, 7 participants reported no key preference, 4 said they used the -1 key, 10 the +1 key, and 9 the +2 key; the remaining 4 participants always experienced a feeling. For the 23 participants who reported a key preference in the AF trials, the preferred key (-1, +1, or +2) correlated weakly but not significantly with the PSS, Spearman's ρ (used because the preferred keys scale can only be considered as ordinal) = .29, $p = .177$, $n = 23$.

The participants estimated that they had felt uncertain about their response in 23% (*SD* = 20%, range 0–70%) of the trials in the OR task, and in 31% (*SD* = 21%, range 0–90%)

in the AF task. A paired *t*-test revealed a significant difference, $t(33) = 2.82$, $p = .008$. The uncertainty ratings were essentially uncorrelated with the latencies of OR, $r(32) = .12$, $p = .511$, and AF, $r(32) = .01$, $p = .942$.

The average difficulty of the OR TOJ was $M = 2.6$ ($SD = 2.0$, range = 0–8), and that of the affect TOJ was $M = 4.8$ ($SD = 2.6$, range 0–10). The difference was significant in a paired *t*-test, $t(33) = 4.39$, $p < .001$. The difficulty ratings were essentially uncorrelated with the latencies of OR, $r(32) = .17$, $p = .345$, and AF, $r(32) = -.04$, $p = .820$.

Model Fits. The average fit of the probit model to the TOJs was $R^2 = .97$, $SD = .03$ for OR, and $R^2 = .92$, $SD = .12$ for AF.

PSSs for OR and AF. The 2 (task) × 2 (task order) × 2 (experiment version: online vs. lab) ANOVA of the individual PSSs revealed an effect of task, $F(1, 32) = 5.43$, $p = .026$ (permutational $p = .020$), $\eta^2_g = .06$. No other effect reached significance, Fs ≤ 2.25, ps $\geq .859$ (permutational ps $\geq .906$). The mean PSS was 56 ms for OR and 173 ms for AF; hence the participants became on average aware of the feelings 117 ms after they recognized the object (compared to 78 ms for the 34 participants included in the analyses reported in the main text). Both of the excluded participants conformed to the mean pattern (AF > OR; hence, altogether 28 of 36 conformed to the mean pattern).

Correlations between the latencies of OR and AF. The size of the correlation between the latencies of OR and AF was $r = .38$ (compared to .67 in the main article) when the outliers were included.

JNDs. The mean JND was greater for affect ($M = 140$ ms) than object recognition ($M = 65$ ms). As in the analysis reported in the main article, this difference was significant, $F(1, 32) = 13.92$, $p = .005$ (permutational $p = .007$), $\eta^2_g = .12$. None of the other effects was significant, Fs ≤ 5.17, ps $\geq .179$ (permutational ps $\geq .180$).

Analyses of Experiment 1a (TOJs) and Experiment 2 (SJs) With the Independent Channels Models for TOJ and SJ Proposed by García-Pérez and Alcalá-Quintana (GPAQ)

To check to which degree the PSS and JND estimates depended on the estimation procedure reported in the main text, we also fitted the independent channels models for TOJs and SJs proposed by García-Pérez and Alcalá-Quintana (2012; henceforth GPAQ) to the data of the first TOJ experiment (Exp. 1a) and the SJ experiment (Exp. 2). Although still infrequently used, the GPAQ model is a more realistic model of the mental processes that generate TOJs and SJs than the probit and Gaussian function models used in the main article. Therefore, but also because the GPAQ models have more parameters (up to 7), they often allow tighter fits of the psychometric curves to the data and a more precise estimate of the PSS. We refrained from interpreting the latent model parameters because our data were not precise enough for a reliable estimation of these parameters (see main text).

Brief Description of the GPAQ Models

Based on work by Sternberg and Knoll (1973) and Schneider and Bavelier (2003), García-Pérez and Alcalá-Quintana (2012; Alcalá-Quintana & García-Pérez, 2013) proposed a unified psychometric model for TOJ and SJ and provided R and Matlab routines for estimating the model's parameters. This model is a version of independent channels model discussed by Sternberg and Knoll (1973).

GPAQ-TOJ Model. In agreement with the probit model described in the main text (Exp. 1a, Method), the GPAQ model for TOJs assumes that latent judgments about temporal order are based on perceived differences in the arrival latencies of internal signals that represent the mental events of interest evoked by the target and probe stimuli. Also, in agreement with the extended version of the probit model that we fitted to the data in the main text, the GPAQ model for TOJs takes account of performance errors (e.g., pressing the wrong button) by including two response error parameters ε_1 and ε_2 that represent the probability of making an error when giving the "before" and "after" response, respectively.

There are three main differences between the probit model and the GPAQ-TOJ model. First, the GPAQ model assumes that arrival times are distributed as shifted exponential distributions. Shifted exponential distributions are often used to model arrival latencies (e.g., Colonius & Diederich, 2011; Heath, 1984), among other reasons because arrival latencies are necessarily positive, which is the case for exponentially but not for normally distributed variables. Second, the GPAQ model assumes that arrival time distributions for the target and probe perception can have different variances, which for exponentially distributed variables implies that the distribution of their differences, on which the TOJs are based, can be asymmetric. Third, the GPAQ model assumes that participants can be unable to discriminate between temporally close stimuli. This assumption is modelled by estimating a threshold parameter δ that describes the person's ability to resolve small time differences. If the difference in the arrival times are less (greater) than δ, the subject judges that one signal occurred before (after) the other; if the difference lies within $-\delta$ and $+\delta$, the subject is assumed to guess "before" with probability ξ and "after" with probability $1-\xi$.

In all, the GPAQ model for the TOJ task contains seven parameters. Four parameters describe the process that generates the latent temporal order judgments. These are two parameters λ_1, λ_2 that describe the decay rates of the two exponential arrival time distributions (their variance thus being $1/\lambda_1$ and $1/\lambda_2$), a parameter τ that represents the difference in the arrival times of the two signals, a threshold parameter δ, and a guessing or response bias parameter ξ. In addition, there are two response error parameters ε_1 and ε_2. However, one or both of these error parameters may not be needed to model a given data set.

GPAQ-SJ Model. The GPAQ model for SJ is identical to the model for the TOJ task up to and including the computation of the decision variable (the difference in the arrival times of mental events of interest evoked by the probe and target events). The difference to the GPAQ-TOJ model results from the fact that in the SJ task, the perceived temporal differences are mapped onto different response options. In the two-alternatives SJ task used in Experiment 2, the mapping is as follows: If the differences in arrival latencies are within -δ and +δ (the lower and upper detection threshold), the subject decides that the two compared events are simultaneous, whereas if the differences in arrival latencies are greater or less than δ, the subject decides that they are non-simultaneous, and these decisions are then made public by pressing the appropriate keys. Because no guessing is necessary in the SJ task, a guessing parameter is not estimated. However, as in the TOJ task, the participant may make a response error when reporting the judgment. As it turns out, three different kinds of reporting errors are possible in the SJ task; hence three parameters for the probabilities of these different response errors ε_1, ε_2, ε_3 need to be estimated (see García-Pérez & Alcalá-Quintana, 2012). Therefore, the SJ model also has seven parameters. Again, however, one to all response error parameters may not be necessary for obtaining a good fit to a given data set.

Analyses of the Data of Experiments 1a and 2. The GPAQ model for TOJ was separately fitted to the OR and AF judgments of each participant of Experiment 1a, while the GPAQ model for SJ was fitted to the data of Experiment 2. The R package *FitTimingJudgments* (Alcalá-Quintana & García-Pérez, 2013) was used for estimation. To reduce the danger of fitting problems, we restricted the bounds of the τ and δ parameters to slightly beyond the respective SOA range (by default, these parameters are completely unrestricted). In more detail, the parameter bounds and starting values were specified in R as shown in Figure S1.6.

To reduce the danger of overfitting, models with zero, one, or two (TOJ) or zero to three (SJ) response process parameters were estimated and the model with the lowest BIC was selected (this is a recommended analysis option; see Alcalá-Quintana & García-Pérez, 2013).

Figure S1.6

Parameter Bounds and Starting Values for the GPAQ Models for Experiments 1a and 2

```
# Parameter bounds
LamBounds = c(1/600, 1/2)
# Select based on the current estimation:
    TauBounds = c(-800, 800) # for TOJ (Exp. 1a) and SJ-AF (Exp. 2)
    TauBounds = c(-250, 250) # for SJ-OR (Exp. 2)
# Select based on the current estimation:
    DeltaBounds = c(0, 800) # for TOJ (Exp. 1a) and SJ-AF (Exp. 2)
    DeltaBounds = c(0, 250) # for SJ-OR (Exp. 2)

# Starting values
LamTStart = c(1/70, 1/3)
LamRStart = c(1/70, 1/3)
TauStart = c(-70, 70)
DeltaStart = c(20, 100)
ErrStart = c(0.05)
BiasStart = c(0.5)
```

Note: R code for the parameter configuration of the GPAQ TOJ and SJ models.

On the basis of the estimated psychometric functions, the PSSs and JNDs were calculated after controlling for the effects of guessing and response errors (see Alcalá-Quintana & García-Pérez, 2013). Because the psychometric function implied by the GPAQ models can be asymmetric, the upper and the lower JND for TOJs were averaged, while the sensitivity index (Half-Width-Half-Height, HWHH) for SJs was computed as half of the difference between the left and the right 50% point of the psychometric function (half-width), and the PSS was computed as the midpoint of this interval. To make this index (HWHH) comparable to the JND index, the same conversion as in the main text was applied (i.e., HWHH was divided by 1.746; see Fujisaki & Nishida, 2009). In addition, we again computed R^2 as a measure of absolute fit of the estimated psychometric functions. As in the ANOVAs reported in the main article, the Holm adjustment procedure was applied to all effects for which no hypotheses had been formulated (Cramer et al., 2016).

Experiment 1a: Temporal Order Judgments

The same 18 participants as in the analyses reported in the main text were included. Table S1.1 summarizes the individual model fits of the GPAQ model for OR and AF, as well as the PSS and JND parameters computed on the bases of the estimated psychometric functions. To facilitate comparison with the results obtained with the probit model (see main text), the corresponding results are also reproduced in the table. As can be seen, the fit of the individual psychometric functions to the data was higher for the GPAQ-TOJ model (mean R^2 = .98 for OR and .97 for AF) than for the probit model (mean R^2 = .97 for OR, .95 for AF). A repeated-measures ANOVA with task (object recognition vs. affect awareness) and estimation method (probit vs. GPAQ) as within-subject factors confirmed that the GPAQ model fitted the data better than the probit model, $F\,(1, 17) = 13.21$, $p = .006$, $\eta^2_g = .06$. The main effect of task and the interaction were not significant, Fs ≤ 2.67, ps $\geq .241$. Thus, the model fits were consistently higher for the GPAQ model but similarly high for both tasks.

Table S1.2

Fit Indices (R^2), PSSs and JNDs for the TOJ Task in Experiment 1a, for the Probit and GPAQ Model

	R^2			PSS			JND		
Task	*M*	*SD*	Range	*M*	*SD*	Range	*M*	*SD*	Range
Object recognition									
Probit model	.97	.03	[.88, > .99]	42	69	[-106, 119]	59	44	[2, 186]
GPAQ model	.98	.03	[.89, > .99]	58	71	[-53, 187]	65	45	[3, 202]
Affect									
Probit model	.95	.03	[.88, .99]	121	86	[-18, 246]	80	43	[8, 144]
GPAQ model	.97	.02	[.94, > .99]	117	93	[-61, 349]	117	86	[5, 290]

Note: N = 18.

Despite the better fit of the GPAQ-TOJ model, both estimation methods yielded nearly identical estimates of the mean PSS (see Table S1.2). An ANOVA of the PSSs found that the effect of task was highly significant, $F(1, 17) = 10.93$, $p = .004$, $\eta^2_g = .16$. The main effect of estimation method and its interaction with task did not reach significance, $F\text{s} \leq 3.08$, $p\text{s} \geq .195$. Hence, for both OR and AF, the mean PSS did not depend on the estimation method (probit or GPAQ). In addition, the PSSs of the individual participants estimated by the probit model (see main text) and the GPAQ-TOJ model were highly correlated, $r = .85$ for OR and $r = .85$ for AF.

A parallel ANOVA was also conducted for the JNDs (Table S1.2). This analysis revealed a significant main effect of task, $F(1, 17) = 7.39$, $p = .044$, $\eta^2_g = .10$. The main and interaction effect of the estimation method were not significant, $F\text{s} \leq 4.49$, $p \geq .059$. Hence, the non-significant difference between the JNDs of OR and AF already found in the probit analysis (main text) was replicated in the GPAQ analysis. Hence, participants had lower JNDs for the detection of the time point of OR than AF.

Experiment 2: Simultaneity Judgments

The average model fits, PSSs and JNDs for the 16 included participants are shown in Table 1.3. The average fits of the psychometric functions were again higher for the GPAQ model than for the probit model for both OR ($R^2 = .83$ for Gaussian function model and .87 for the GPAQ model) and AF ($R^2 = .88$ for the Gaussian function and .92 for the GPAQ model). An ANOVA with task and estimation method as within-subject factors revealed a significant main effect of estimation method, $F(1, 15) = 15.37$, $p = .004$, $\eta^2_g = .03$. The main effect of task and its interaction with estimation method were not significant, $F\text{s} \leq 2.09$, $p\text{s} \geq .338$.

A parallel ANOVA on the PSSs revealed a significant effect of task, $F(1, 15) = 15.44$, $p = .001$, $\eta^2_g = .33$, indicating that the participants became aware of the affect elicited by the pictures significantly later than they recognized the objects. No other main effect or interaction reached significance, *F*s ≤ 1.47, *p*s ≥ .489. The correlation between the individual PSSs estimated by the Gaussian function model used in the main text and the GPAQ-SJ model was $r = .56$ for OR and $r = .98$ for AF.

Table S1.3

Fit Indices (R^2), PSSs and JNDs for the SJ Task in Experiment 2, for the Gaussian Function and GPAQ-SJ Model

	R^2			PSS			JND		
Task	*M*	*SD*	Range	*M*	*SD*	Range	*M*	*SD*	Range
Object recognition									
Gaussian model	.83	.18	[.38, .99]	11	24	[-14, 64]	53	22	[19, 96]
GPAQ model	.87	.14	[.57, > .99]	17	28	[-11, 81]	47	21	[14, 88]
Affect									
Gaussian model	.88	.08	[.68, .99]	165	149	[9, 512]	152	87	[45, 393]
GPAQ model	.92	.09	[.68, > .99]	159	154	[10, 540]	144	72	[29, 294]

Note: $N = 16$.

A parallel ANOVA for the JNDs yielded a significant effect of task, $F(1, 15) = 32.31$, $p < .001$, $\eta^2_g = .43$, reflecting a broader range of perceived simultaneity for AF than for OR. The effect of estimation method and the interaction were not significant, *F*s ≤ 3.36, *p*s ≥ .174.

Discussion

For both experiments 1a and 2, the GPAQ model had a significantly better fit than the probit or Gaussian model. The main reason was that the TOJ and SJ curves were often somewhat asymmetric (see figures S1.1 and S1.3), which could be captured by the GPAQ models but not the probit or the Gaussian function model. However, for both TOJ and SJ, the average of the PSSs for OR and AF estimated by the two models were very similar. In addition, the individual PSSs estimated with the probit/Gaussian function and the GPAQ-

TOJ/SJ models correlated strongly in both experiments, with the exception of the PSS of OR in the SJ paradigm, for which the correlation was moderate.

Additional References

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Table S1.1

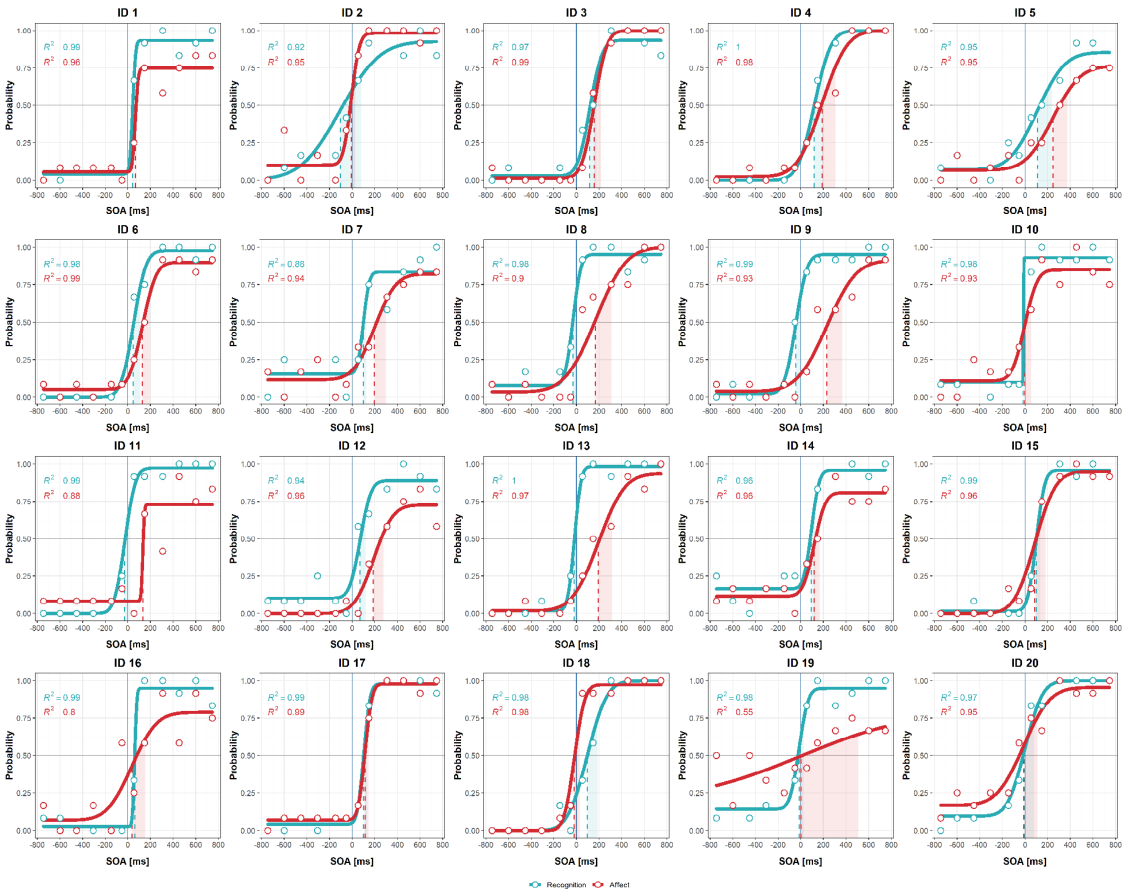
OASIS Pictures used in Experiment 3

Pleasant		Unpleasant	
Baby 1	Fireworks 6	Angry face 3	Gun 3
Baby 2	Flowers 4	Angry face 4	Gun 5
Baby 3	Flowers 6	Animal carcass 1	Gun 6
Baby 4	Galaxy 2	Animal carcass 3	Gun 7
Baby 5	Galaxy 5	Animal carcass 6	Gun 9
Baby 6	Galaxy 7	Baby 7	Hallway 1
Baby 9	Horse 1	Bloody knife 2	Hangover 1
Beach 1	Lake 1	Car accident 4	Injury 2
Beach 2	Lake 10	Car crash 3	Jail 1
Beach 4	Lake 12	Cemetery 5	Jail 2
Beach 6	Lake 13	Cockroach 1	Jail 3
Beach 7	Lake 14	Cockroach 2	Jail 4
Beach 8	Lake 15	Cockroach 3	Jail 5
Bird 1	Lake 2	Cockroach 4	Miserable face 2
Bird 3	Lake 3	Depressed pose 3	Miserable pose 4
Bridge 1	Lake 7	Destruction 10	Miserable pose 5
Cat 14	Lake 8	Destruction 2	Neonazi 1
Cat 3	Lake 9	Destruction 5	Pigeon 6
Cat 4	Lamb 1	Destruction 6	Plane crash 4
Cat 5	Massage 1	Destruction 7	Police 2
Children 1	Massage 2	Dog 31	Police 5
Chipmunk 2	Mother 1	Dog attack 1	Pollution 1
Dancing 5	Mother 4	Dog attack 3	Prison 2
Dancing 6	Mother 6	Explosion 2	Sad face 1
Dancing 7	Nature 1	Explosion 3	Sad face 2
Dessert 2	Nature 2	Explosion 6	Sad face 8
Dessert 3	Nude couple 5	Feces 1	Sad face 9
Dog 12	Nude couple 7	Feces 2	Shot 1
Dog 18	Penguins 1	Fence 4	Skinhead 1
Dog 19	Penguins 2	Ferret 1	Snake 1
Dog 2	Rainbow 1	Fire 3	Snake 3
Dog 20	Rainbow 2	Flood 1	Snake 4
Dog 21	School 2	Frustrated pose 1	Snake 5
Dog 3	Siblings 1	Frustrated pose 2	Soldiers 10
Dog 4	Sunflower 1	Frustrated pose 3	Soldiers 7
Dog 5	Sunset 1	Funeral 1	Soldiers 8
Dog 6	Sunset 2	Garbage dump 3	Spider 1
Dog 7	Sunset 3	Garbage dump 5	Spider 2
Elephant 1	Sunset 4	Garbage dump 8	Volcano 2
Excited face 5	Sunset 5	Gun 1	War 2
Father 1	Sunset 6	Gun 10	War 4
Fireworks 5	Zebra 1	Gun 2	War 5

Note: Pictures are sorted in an alphabetic order.

Figure S1.1

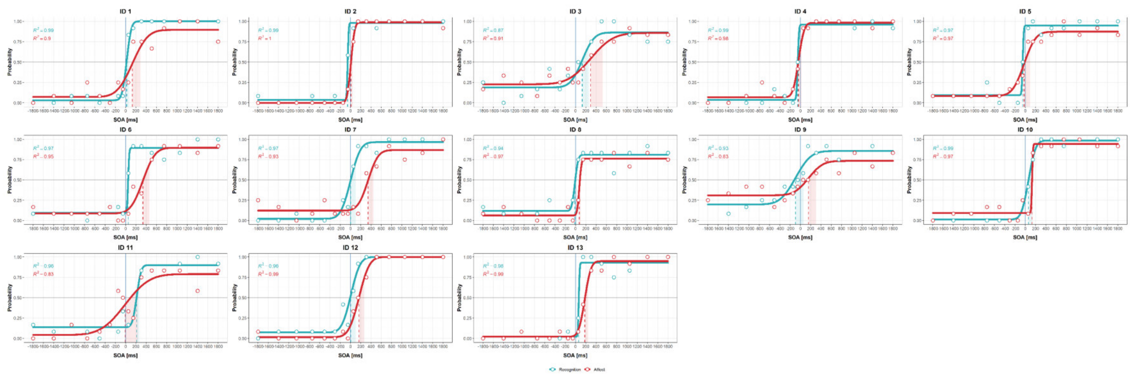
Psychometric Functions of the Individual Participants, Experiment 1a



Note: Psychometric functions for object recognition (blue) and affect (red) and the corresponding PSSs (dashed vertical line) and JNDs (shaded area under the curve) for individual participants in Experiment 1a. The fit indices (R^2) are displayed in the corresponding colors. ID 16 was excluded from the analyses reported in the main article because of very low affect ratings; ID 19 was excluded because of very high guess and lapse rate in the affect task, as a consequence of which the fitted function did not approach the asymptotes.

Figure S1.2

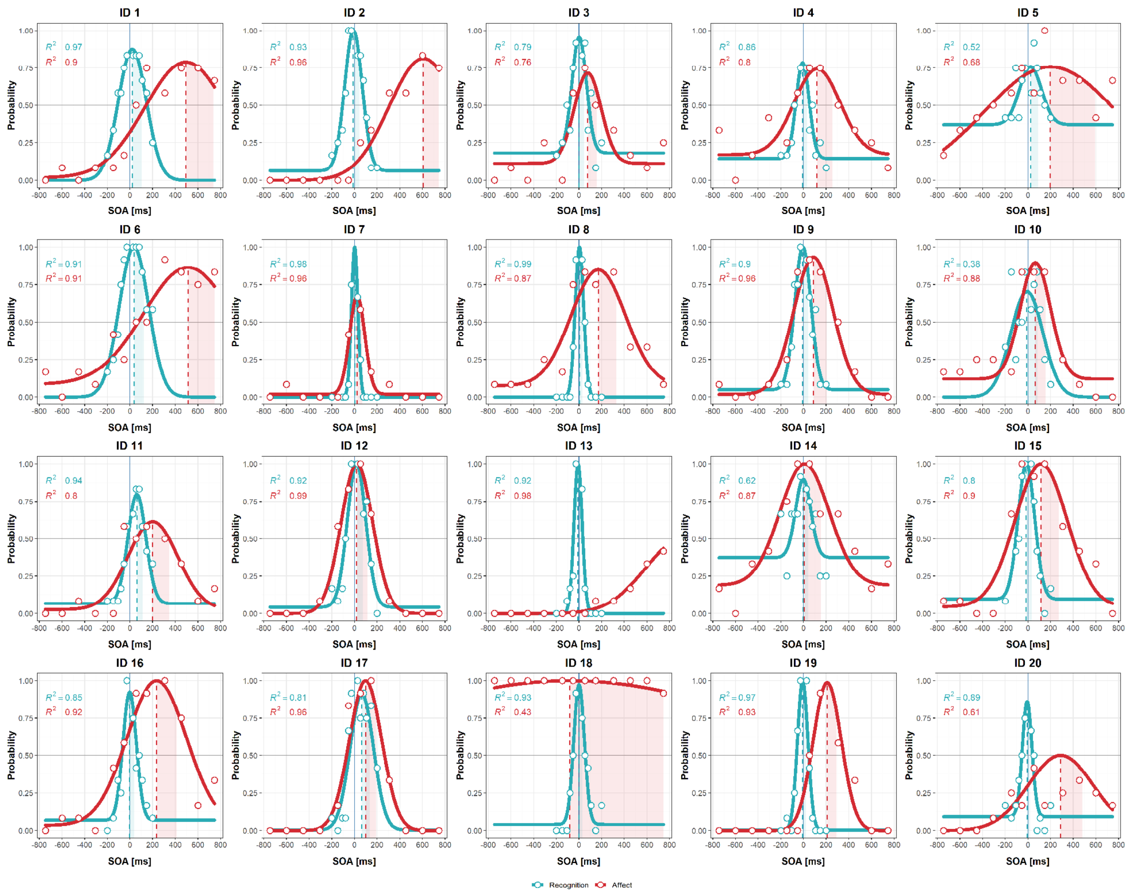
Psychometric Functions of the Individual Participants, Experiment 1b



Note: Psychometric functions for object recognition (blue) and affect (red) and the corresponding PSSs (dashed vertical line) and JNDs (shaded area under the curve) for individual participants in Experiment 1b. The fit indices (R^2) are displayed in the corresponding colors.

Figure S1.3

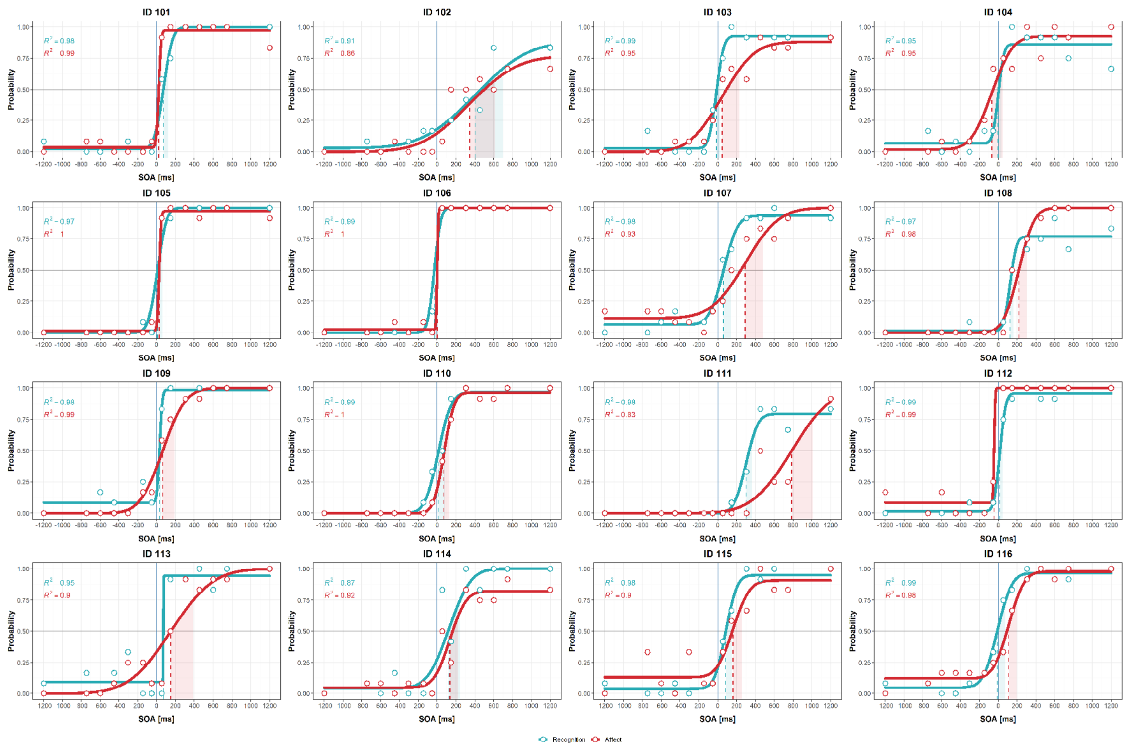
Psychometric Functions of the Individual Participants, Experiment 2



Note: Psychometric functions for object recognition (blue) and affect (red) and the corresponding PSSs (dashed vertical line) and JNDs (shaded area under the curve) for individual participants in Experiment 2. The fit indices (R^2) are displayed in the corresponding colors. ID 2 was excluded from the analyses reported in the main article because of very low affect ratings; ID 18 was excluded because affect was judged as simultaneous to the perception of the probe at all but one SOA; ID 13 was excluded because the probability of the “simultaneous” judgment failed to decline until the end of the measurement period, meaning that the estimated peak of the curve fell outside the SOA range. ID 20 was excluded because the probability of “simultaneous” judgments in the affect task remained below .50 at all SOAs, suggesting random responding. See text for further explanation.

Figure S1.4

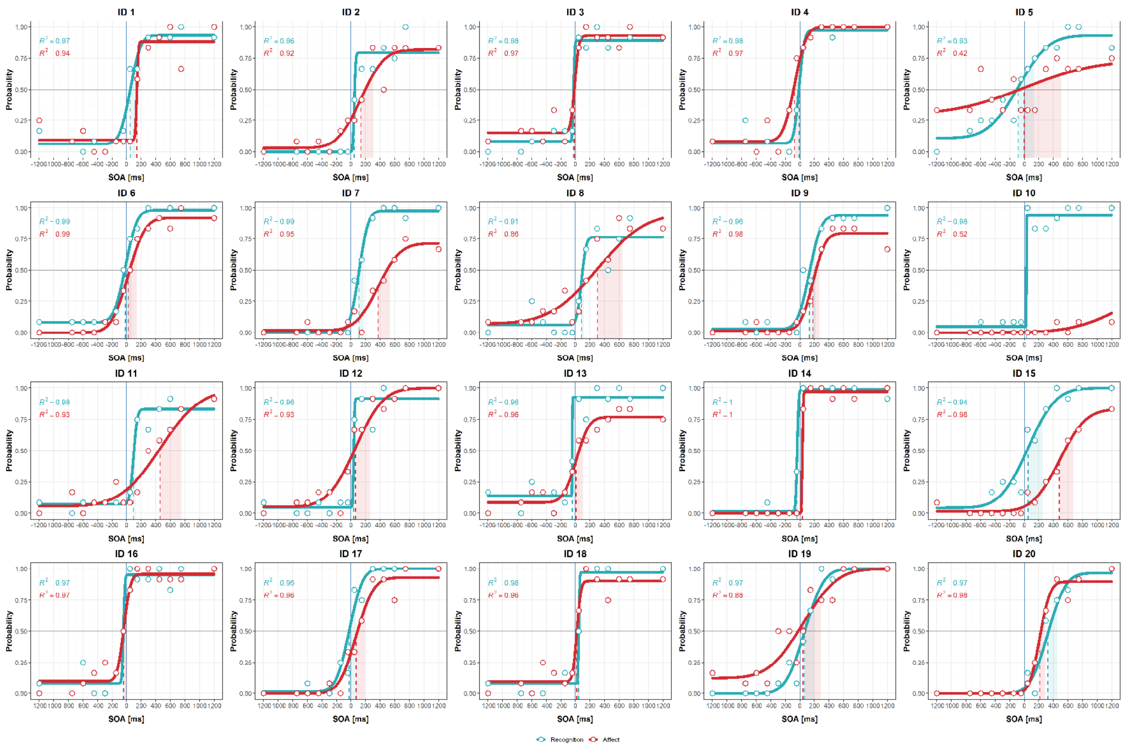
Psychometric Functions of the Individual Participants, Lab Version of Experiment 3



Note: Psychometric functions for object recognition (blue) and affect (red) and the corresponding PSSs (dashed vertical line) and JNDs (shaded area under the curve) for individual participants in Experiment 3, lab version. The fit indices (R^2) are displayed in the corresponding colors.

Figure S1.5

Psychometric Functions of the Individual Participants, Online Version of Experiment 3



Note: Psychometric functions for object recognition (blue) and affect (red) and the corresponding PSSs (dashed vertical line) and JNDs (shaded area under the curve) for individual participants in Experiment 3, online version. The fit indices (R^2) are shown in the corresponding colors. ID 5 was excluded because of a low curve fit and very high lapse and guess rates in the affect task; ID 10 was excluded because of a low curve fit and because response frequencies below 50% at all SOAs in the affect task.